

# New scoring system to help predict risk of digestive complications after stomach surgery

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<b>Registration date</b> 24/10/2024	<b>Overall study status</b> Completed	<input checked="" type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 12/11/2024	<b>Condition category</b> Digestive System	<input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Gastrointestinal fistula is a serious complication that can occur after stomach surgery (gastrectomy). It involves an abnormal connection forming between the stomach and surrounding organs, leading to severe health problems or even death. Identifying patients at high risk of developing this complication early is crucial to improve their care and reduce complications. Our study developed a scoring system called the "F-index" to predict the risk of gastrointestinal fistula after gastrectomy.

### Who can participate?

Patients who had stomach surgery at two hospitals between August 2021 and December 2023 were included in the study.

### What does the study involve?

Participants were divided into two groups: low-risk and high-risk, based on the F-index score. We analyzed different factors such as age, body weight, type of disease, and time until the fistula occurred to determine which factors increased the risk of developing a fistula.

### What are the possible benefits and risks of participating?

None

### Where is the study run from?

The study is run from The Second Hospital of Jilin University in China.

### When is the study starting and how long is it expected to run for?

August 2021 to December 2023.

### Who is funding the study?

Investigator initiated and funded

### Who is the main contact?

Prof. Yongsheng Yang, [qdjnmm@163.com](mailto:qdjnmm@163.com)

# Contact information

## Type(s)

Public, Scientific, Principal Investigator

## Contact name

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# Additional identifiers

## EudraCT/CTIS number

Nil known

## IRAS number

## ClinicalTrials.gov number

Nil known

## Secondary identifying numbers

L202412001

# Study information

## Scientific Title

A multicenter retrospective study on the development and validation of the F-index scoring system for predicting the risk of gastrointestinal fistula after gastrectomy

## Acronym

F-GF Study

## Study objectives

The F-index scoring system can effectively predict the risk of gastrointestinal fistula after gastrectomy, allowing for early identification of high-risk patients and improved postoperative management to reduce morbidity and mortality. Specifically, the hypothesis is that certain clinical factors (e.g., age  $\geq 65$  years, BMI  $< 18.5$ , malignant disease, fistula size  $> 1$  cm) are significantly associated with an increased risk of postoperative gastrointestinal fistula.

## Ethics approval required

Ethics approval required

### **Ethics approval(s)**

Approved 26/09/2024, The Ethics Committee of Weifang People's Hospital (Guangwen Street No.151, Kuiwen District, Weifang, 261000, China; +86 0536 819 2019; daniel\_zdk@163.com), ref: L202412001

### **Study design**

Retrospective cohort study

### **Primary study design**

Observational

### **Secondary study design**

Cohort study

### **Study setting(s)**

Medical and other records

### **Study type(s)**

Prevention

### **Participant information sheet**

Not applicable (retrospective study)

### **Health condition(s) or problem(s) studied**

Gastrointestinal fistula after gastrectomy

### **Interventions**

This study is a retrospective cohort analysis aimed at developing and validating the F-index scoring system for predicting gastrointestinal fistula risk after gastrectomy. The participants of this study are patients who underwent gastrectomy between August 2021 and December 2023. Data were collected from electronic medical records, and the study involved a total of 83 patients across multiple centers. Participants in this study did not require active recruitment or intervention, as the research was based on the retrospective analysis of existing patient records. All included patients had previously undergone surgery and were diagnosed with gastrointestinal fistula through clinical symptoms and imaging or endoscopic examinations. These symptoms included signs of systemic inflammation, respiratory issues, or abdominal discomfort, which were documented as part of routine post-operative care. The primary variables extracted from patient records included age, BMI, type of primary disease, fistula type, history of diabetes, time to fistula occurrence, and fistula size. These factors were analyzed to develop the F-index, a scoring system designed to predict the risk of postoperative fistula. Based on this scoring system, patients were divided into low-risk (0-3 points) and high-risk (4-7 points) groups. Follow-up for the purposes of this study refers to the post-surgical monitoring recorded in patient medical files, which included outcomes such as hospital stay duration, incidence of reoperation, and post-operative complications. The duration of follow-up was effectively the period from the surgery until the occurrence of a fistula or until the patient's condition was stabilized postoperatively. The length of follow-up varied depending on the individual's clinical progression, with some patients requiring longer hospitalization due to complications, while others had relatively shorter follow-up periods. Given that this is a retrospective study, participants' involvement concluded when their medical data was collected.

and analyzed for the purpose of this study. There was no active intervention or experimental procedure beyond the standard clinical care they received.

**Intervention Type**

Procedure/Surgery

**Primary outcome measure**

Risk of developing gastrointestinal fistula after gastrectomy, assessed by the F-index scoring system (measured as high-risk or low-risk classification) measured using patient records at a single time point

**Secondary outcome measures**

Predictive accuracy of the F-index scoring system, including AUC of the ROC curve, sensitivity, specificity, and calibration plot measured using patient records at a single time point

**Overall study start date**

01/08/2021

**Completion date**

31/12/2023

## Eligibility

**Key inclusion criteria**

1. Patients who underwent gastrectomy between August 2021 and December 2023.
2. Patients diagnosed with gastrointestinal fistula postoperatively, confirmed by clinical symptoms and imaging or endoscopic examination.
3. Patients who underwent laparoscopic surgery for benign or malignant gastric diseases.
4. Patients with postoperative clinical manifestations of gastrointestinal fistula, including signs of inflammation (heart rate  $>100/\text{min}$ , hyperthermia  $>38^\circ\text{C}$ ), peritonitis (diffuse abdominal tenderness), respiratory symptoms (cough, expectoration), or elevated white blood cell count ( $\text{WBC} > 11 \times 10^9/\text{L}$ ).
5. Patients able to provide informed consent or whose consent was provided by a legal representative.

**Participant type(s)**

Patient

**Age group**

Adult

**Lower age limit**

18 Years

**Upper age limit**

80 Years

**Sex**

Both

**Target number of participants**

83

**Total final enrolment**

83

**Key exclusion criteria**

1. Patients with a history of gastrointestinal fistula prior to laparoscopic surgery.
2. Patients who did not complete follow-up.
3. Patients who died during surgery or due to other major complications that prevented a clear diagnosis of postoperative fistula.
4. Patients who underwent non-laparoscopic surgical procedures for gastric diseases.

**Date of first enrolment**

01/08/2023

**Date of final enrolment**

31/12/2023

**Locations****Countries of recruitment**

China

**Study participating centre**

**The Second Hospital of Jilin University**

No.218 Ziqiang Street, Nanguan District

Changchun

China

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**Study participating centre**

**Weifang People's Hospital**

Guangwen Street No.151, Kuiwen District

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**Sponsor information****Organisation**

The Second Hospital of Jilin University

### Sponsor details

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### Sponsor type

Hospital/treatment centre

## Funder(s)

### Funder type

Other

### Funder Name

Investigator initiated and funded

## Results and Publications

### Publication and dissemination plan

The findings from this study will be submitted for publication in peer-reviewed medical journals, focusing on surgery and gastroenterology, such as Surgical Endoscopy or Annals of Surgery. The results will also be presented at relevant national and international medical conferences to share the insights with the broader medical community. Additionally, we plan to disseminate key findings through hospital seminars and professional meetings to inform clinical practice. Where appropriate, the findings may be summarized in lay language for patient information leaflets to help patients understand the importance of risk assessment after gastrectomy.

### Intention to publish date

10/03/2025

### Individual participant data (IPD) sharing plan

At this time, there is no plan to share individual participant data publicly. However, de-identified data may be made available upon reasonable request for research purposes, subject to ethical approval and data use agreements. Any data sharing will comply with applicable privacy and confidentiality regulations to ensure participant safety and anonymity.

### IPD sharing plan summary

Available on request

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Statistical Analysis Plan</a>			24/10/2024	No	No